Chapter 7 quiz, November 14, 2011. Not to be graded. 15 minutes.

Q1. Find the following critical values. (Whenever you see "critical values", recall the definition of $z_{\alpha/2}$. But, critical values are just certain quantiles, whether or not α appears in the notation.)

1. $z_{0.005}$

2. $z_{0.05}$

3. $z_{0.025}$

4. $z_{0.01}$

Q2. Let $X_1, \ldots, X_{100}$ be an i.i.d. sample (or "random sample") from the distribution $N(2, 9)$.

1. What's the distribution of $\overline{X} = \frac{1}{100}(X_1 + \ldots + X_{100})$?

2. What's the distribution of $3\overline{X} + 1$?

Q3. Suppose $X \sim N(\mu, \sigma^2)$. Let $z_{\alpha/2}$ be a critical value. What is the probability
$P(\mu - z_{\alpha/2} \cdot \sigma < X < \mu + z_{\alpha/2} \cdot \sigma)$?